What is claimed is:

1. A method of temperature stabilization of a wavelength of a laser, comprising:

measuring a representative temperature of the laser;

measuring the wavelength using an internal etalon of the wavelength;

defining a correction factor for the etalon using an external meter of the wavelength; and

operating a module defining the representative temperature at a set point corresponding to a generation of an optical power at a wavelength equal to a sum of the wavelength measured using the internal etalon and the correction factor.

2. The method of claim 1 wherein the wavelength of the laser is measured using the external meter prior to operating the laser in an optical transmission system.

3. The method of claim 1 wherein the correction factor is defined prior to operating the laser in an optical transmission system.

4. The method of claim 1 wherein the representative temperature is a temperature selected from the group consisting of a temperature of a laser chip of the laser, temperature of the internal etalon, a temperature of the module, a temperature of a submount housing the laser chip and the internal etalon, and a temperature of a medium between the laser chip, the internal etalon, and the module.

5. The method of claim 1 wherein the module comprises a thermoelectric cooler/heater.

6. The method of claim 1 wherein the representative temperature is measured using a thermistor or a thermocouple.

7. The method of claim 1 wherein an accuracy of the external meter is equal or greater the accuracy of the internal etalon.

8. The method of claim 1 wherein the internal etalon measures the

wavelength using a method, comprising:

defining of a ratio between a first electrical signal proportional to the output power at an input of the internal etalon and a second electrical signal proportional to the output power at an output of the internal etalon.

9. The method of claim 1 wherein the correction factor is defined using a method, comprising:

(a) measuring the wavelength of the laser using the internal etalon;

(b) measuring the wavelength of the laser using the external meter;

(c) measuring the representative temperature;

(d) modifying a bias current of a laser chip of the laser;

(e) adjusting the representative temperature until the external meter measures the same wavelength as at the step (b);

(f) defining a difference in the representative temperature at the steps (c) and (e); and

(g) measuring the wavelength using the internal etalon.

10. The method of claim 1 wherein the laser assembly comprises:

a laser chip disposed on a submount;

the internal etalon disposed on the submount;

the module controlling a temperature of the laser chip and the first etalon;

a temperature sensor;

a photodetector of an optical signal proportional to a laser output power at an input of the internal etalon; and

a photodetector an optical signal proportional to the laser output power at an output of the internal etalon.

11. An apparatus for temperature stabilization of a wavelength of a laser, comprising:

a laser power supply;

a laser chip assembly comprising:

a laser chip;

a wavelength locker comprising an etalon of the wavelength;

a module controlling a temperature of the laser chip and the

etalon; and

a sensor of a representative temperature; and

a temperature controller, comprising:

a calculator of the wavelength, the calculator coupled to the wavelength locker and comprising a memory of a correction factor compensating for thermal instability of the etalon;

a power supply facilitating a temperature set point of the module, and

a processor coupled to the calculator and the sensor and defining a set point of the power supply.

12. The apparatus of claim 11 wherein the representative temperature is a temperature selected from the group consisting of a temperature of the laser chip, temperature of the etalon, a temperature of the module, a temperature of a submount housing the laser chip and the etalon, and a temperature of a medium between the laser chip, the etalon, and the module.

13. The apparatus of claim 11 wherein the sensor comprises a thermistor or a thermocouple.

14. The apparatus of claim 11 wherein the etalon measures the wavelength using a method, comprising:

defining of a ratio between a first electrical signal proportional to an output power of the laser at an input of the etalon and a second electrical signal proportional to the output power of the laser at an output of the etalon.

15. The apparatus of claim 11 wherein the correction factor is determined using a wavelength meter coupled to an output of the laser outside the laser chip assembly.

16. The apparatus of claim 15 wherein the correction factor is determined prior to operating the laser in an optical transmission system.

17. The apparatus of claim 15 wherein the correction factor is defined using a

method, comprising:

(a) measuring the wavelength of the laser using the etalon;

(b) measuring the wavelength of the laser using an external meter;

(c) measuring the representative temperature;

(d) modifying a bias current of the laser chip;

(e) adjusting the representative temperature until the external meter measures the same wavelength as at the step (b);

(f) defining a difference in the representative temperature at the steps (c) and (e); and

(g) measuring the wavelength using the etalon.